



DATA ON USSR EXTRACTIVE INDUSTRIES

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Prepared by

Foreign Documents Division
CENTRAL INTELLIGENCE AGENCY
2430 E. St., N. W., Washington 25, D.C.

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TABLE OF CONTENTS

	<u>Page</u>
I. Chemical Industry	1
General	1
Agricultural Chemicals	1
Basic Chemicals	2
Coke Chemicals and Petrochemicals	3
Mineral Chemical Products	5
Paint and Varnish Products	6
Rubber and Rubber Products	7
Miscellaneous	8
II. Petroleum and Gas Industries	12
USSR Petroleum Industry in General	12
Miscellaneous	12
Gas Operations	14
Caucasus	18
Ukraine	19
Ural-Volga Region	19
Central Asia	20
Azerbaijan	21
III. Ferrous Metallurgy	27
Production	27
Construction	28
Alloys and High-Grade Steel Production	29

- a -

	<u>Page</u>
Technology	30
Scrap Metal Collection	31
Prospecting and Exploration	31
Miscellaneous	32
IV. Nonferrous Metallurgy	33
Production	33
Construction	34
Technology	34
Prospecting and Exploration	37
Miscellaneous	41
V. Coal Industry	42
General	42
Administration	43
Production	43
Technology	47
Construction	50
Prospecting	52
Safety	53
Training	54

I. CHEMICAL INDUSTRY

General

PREVIEW OF USSR 1958 CHEMICAL INDUSTRY -- Moscow, Pravda, and Izvestiya, 20 Dec 57

I. I. Kuzmin, chairman of Gosplan (State Planning Commission) USSR, reports on USSR 1958 plans for the chemical industry.

[The section on the 1958 chemical industry development in Kuzmin's report on the over-all 1958 plan appears in Current Digest of the Soviet Press, No 51, 29 January 1958, p 6. It consists of generalities.]

DEVELOPMENT OF SOVIET ORGANIC SYNTHESIS INDUSTRY -- Moscow, Pravda, 8 Jan 58

Chemical science and industry is currently entering a new stage of development.

[A long article on development of Soviet organic synthesis industry appears in the Daily Review of the Soviet Press, Vol IV, No 1, 15 January 1958. No new data.]

Agricultural Chemicals

EXPANSION OF BORON AND PHOSPHATE FERTILIZER PRODUCTION -- Alma-Ata, Kazakhstanskaya Pravda, 4 Dec 57

The Dzhambul Superphosphate Plant, which manufactures granulated superphosphate, is being expanded. The output of boron-magnesium fertilizer at the Aktyubinsk Chemical Combine is being increased.

SPEED-UP URGED FOR INDIGENOUS FERTILIZER PRODUCTION FACILITIES IN EAST SIBERIA -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 18 Dec 57

At present, chemical fertilizers for the agricultural requirements of East Siberia are brought in from the central regions of the USSR. To eliminate this irrational import, shops for ammonium fertilizer production must be constructed at maximum speed, so that they will operate at full capacity by 1960. It is proposed to set up the output of urea, which benefits the growing of fodder crops for cattle, in 1958.

The construction of chemical enterprises and oil refineries in the region is proceeding slowly. This is due to the lack of plans and diagrams, incorrect planning of capital investment, and insufficient equipping of the Trust "Vostoktyazhstroy" with machinery and transport vehicles. Gosplan USSR and the Ministry of Chemical Industry have appealed to the sovnarkhoz (council of national economy) for active help in speeding up the construction of plants.

Basic Chemicals

NEW METHOD FOR BORON AND IODINE PRODUCTION -- Baku, Bakinskiy Rabochiy, 10 Dec 57

With the cooperation of A. Kh. Panakhzade, director of the Baku Iodine Plant, and workers at the plant, the Institute of Chemistry of the Academy of Sciences Azerbaydzhan SSR is studying the possibility of using the same water to produce from it first boron trace-element fertilizer and then iodine. Experiments have shown that the coordination of both types of production is possible. Thus, it is evident that the process for the preliminary recovery of boron from the water improves the quality of the latter as the raw material for iodine production.

The best interests of industry and agriculture require the rapid introduction of this method into production.

Coke Chemicals and Petrochemicals

NEW SYNTHETIC ALCOHOL PLANT AT ORSK -- Kishinev, Sovetskaya Moldaviya,
5 Dec 57

A new synthetic alcohol plant has gone on stream in Orsk, Chkalovskaya Oblast. The ethylene-containing gases produced in the refining of petroleum at the Orsk Refinery are employed as raw material. Earlier, these gases escaped into the air. The plant will annually produce a quantity of alcohol such as would require millions of pud of grain if this were used as the raw material.

[Comment: The news item is accompanied by a picture of the pyrolysis furnaces of the plant. Mention of this plant was observed in the press as early as November 1956.]

DATA ON USSR SYNTHESIS OF PETROLEUM AND NATURAL GASES -- Moscow, Promyshlennost-Ekonomicheskaya Gazeta, 13 Dec 57

The gases derived from petroleum extraction and refining as well as natural gas represent a very cheap raw material for organic synthesis. The production of products obtained from these materials is based on highly effective modern methods.

Therefore, the share of capital investment for the construction of installations for production of chemicals from by-product and petroleum gases and the cost of these products are comparatively lower than when they are manufactured from other types of raw materials.

Great quantities of these gases make it possible to set up large combinations of installations and technological systems with large production capacities.

As an example, the amount of capital investment for the production of one ton of ethyl alcohol amounts to 4,000 rubles when manufactured from the waste gases of oil refineries and 9,350 rubles (in terms of standard agricultural costs) when produced from edible raw materials. According to data for 1956, the actual cost of a ton of synthetic alcohol is approximately half the cost of alcohol produced from edible products.

No less characteristic is a comparison of production methods for phenol used at present in the chemical industry. In the sulfonation method the capital investment per ton of phenol is fixed at 3,800 rubles; the cost per ton of the product amounts to 3,400 rubles. In the production of phenol from chlorobenzene, these figures are 3,300 and 2,100, respectively. Very profitable is the production of phenol by the cumene method from petroleum gases. In this method capital investment amounts to 2,100 rubles and cost to 2,000 rubles a ton.

The following data indicate the size of USSR reserves in natural, by-product, and petroleum gases. From the quantity of gases at present available as a by-product of petroleum drilling in Bashkiriya, Tatariya, and Kuybyshevskaya Oblast alone, it is possible to manufacture about 290,000 tons of polyethylene (as much as will be produced in the US in 1957 and four times as much as will be produced by England and West Germany together), 500,000 tons of synthetic alcohol, and more than 120,000 tons of synthetic rubber.

According to the rate of production of chemical products on the basis of refinery gases, the following holds true: If the gases obtained in the refinery process by the Grozny refineries were completely utilized, then it would be possible to manufacture more than 100,000 tons of synthetic alcohol, about 17,000 tons of phenol, and 10,000 tons of acetone a year. The capacity of the Grozny refineries is considerably less than of the Ufa, Kuybyshev, and other enterprises.

In the last 3-4 years, petroleum and by-product gases have not been completely used for the production of synthetic products. In large measure this is explained by the bureaucratic approach to the problem by the former Ministry of Petroleum Industry USSR and the Ministry of Chemical Industry USSR.

Mineral Chemical Products

NEW PHOSPHORITE DEPOSIT IN CHELYABINSKAYA OBLAST, RSFSR -- Moscow, Sovetskaya Rossiya, 7 Dec 57

Several years ago, ore with a 25-percent phosphorite content was discovered on Kulikova Mountain near Asha, Chelyabinskaya Oblast. A careful investigation showed that the mountain contained a valuable deposit of phosphorite ore. The thickness of the stratum of the occurrence was 60-70 meters, and in a number of places there were outcroppings of the ore on the surface. Of special value is the fact that the phosphorites do not require special processing but may be applied directly to the soil.

Tests of the fertilizer were made in the fields in 1954-1955 and excellent results were achieved.

In 1957, the Ministry of Local Industry Bashkirskaya ASSR was directed to begin working the new deposit, but so far no action has been taken. The reason cannot be cost, since the material sells for 20 rubles a ton, i.e., one third the cost of superphosphate. Insufficient reserves is not the answer, either. The deposit will last for tens of years. It also contains 40 million tons of limestone with a phosphorite content of 2-5 percent. This will be a valuable fertilizer for the acid soils of the northern rayons of Bashkiriya. It cannot be said that the republic does not require phosphorite fertilizers. Each year, it applies about 8,000 tons of superphosphate and phosphorite flour. The problem is actually a lack of technicians who can get this operation under way.

Construction of the mine on Kulikova Mountain and a workers' settlement will take at least 2-3 years. The delay will result in a potential loss of many million pud of grain each year.

CAPITAL INVESTMENT IN KAZAKH CHEMICAL INDUSTRY -- Alma-Ata, Kazakhstanskaya Pravda, 4 Dec 57

In 1958, capital investment in the Kazakh chemical industry will be increased 50 percent. In this connection the Kara-Tau Mineral-Chemical Combine, which produces phosphorite flour for the manufacture

of superphosphate, will utilize a large new deposit of phosphorites. Railroads and motor vehicle roads, electric power lines, and a settlement for the workers will be constructed. A new shaft is being built and will be put into operation at the existing mine.

UNSATISFACTORY EXPLOITATION OF KAZAKH MINERAL DEPOSITS -- Alma-Ata, Kazakhstanskaya Pravda, 11 Dec 57

In the Kazakh SSR there are particularly large reserves of chemical raw materials. In the number of phosphorite reserves the republic has assumed first place in the USSR. However, extraction of this mineral is lagging in the republic, amounting to only 20 percent of total Soviet production. This leads to a situation where the Aktyubinsk Chemical Combine, for example, processes Khibinsk apatites from the Far North although large deposits of this same raw material lie nearby. It is of extreme importance to master the industrial production of Aktyubinsk phosphorites for the production of pure phosphorus.

Also important is the need to speed up the investigation and development of industrial methods to utilize the large reserves of potassium salt deposits located in Aktyubinskaya Oblast, which amount to 400 million tons.

West Kazakhstan is rich in boron, which is extracted at the Inder deposit. Reserves of this material may be sharply increased. New deposits of this valuable raw material have been discovered. The Kazakh SSR holds first place in the country in boron reserves.

Paint and Varnish Products

TECHNOLOGICAL IMPROVEMENTS AT TASHKENT PLANT -- Tashkent, Pravda Vostoka, 23 Nov 57

New technology and equipment have been introduced at the Tashkent paint and Varnish Plant. In 1957, the furnaces in the oil varnish shop were converted from solid to liquid fuel, i.e., to mazut. This resulted in a 10-percent increase in production.

A precipitated siccatives department has been put into operation. This product is produced cheaply and its quality is not inferior to oil siccatives.

The plant has mastered the technology of producing black varnishes by the cold method, which improves the quality of the product. The introduction of two horizontal color-grinding machines with individual drive transmissions has resulted in a 10-percent increase in labor productivity.

A new shop for the production of metal containers has gone into operation.

An aggregate for painting metal containers has been installed. This has increased labor productivity 15 percent. Labor productivity has also been improved by the introduction of an aggregate for drying the containers.

Rubber and Rubber Products

IMPROVEMENTS IN TIRE PRODUCTION AT OMSK -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 6 Oct 57

At the Omsk Tire Plant two high-speed rubber mixers have been put into operation. These have doubled the capacity of the regular machines. The experimental operation of the high-speed mixers has shown that the time used to process the mixture can be reduced 50-60 percent and the rolling of natural rubber by more than two thirds.

Moscow, Izvestiya, 9 Oct 57

A Scientific Research Institute for Tire Industry is being set up in Omsk. Its scientific workers and engineers will be occupied with the developmental construction of new machines and the improvement of technological processes in the tire industry.

PRODUCTIVITY SUCCESSES AT MOSCOW PLANT -- Moscow, Sotsialisticheskiy Trud, No 11, Nov 57, p 47

Labor productivity at the Moscow Kauchuk Plant increased 14.3 percent in 1956 and is expected to rise in 1957 as well. During 1952-1956, the annual rise in labor productivity at the enterprise has never been less than 10 percent. It has increased 70 percent since 1950.

YEREVAN PLANT ENLARGED -- Kiev, Pravda Ukrainy, 31 Oct 57

Since the beginning of 1957, the Yerevan Tire Plant has manufactured several thousand "Gigant" motor vehicle tires above plan. New equipment has been installed at the plant. Not long ago, a vulcanization shop was put into operation. This has resulted in a significant increase in production.

(Article is accompanied by a photograph showing a general view of the new vulcanization shop.)

Miscellaneous

USSR DETERGENT INDUSTRY -- Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 22 Nov 57

The all-out development of the production of substitutes for plant and animal raw materials is one of the most important tasks of the USSR national economy. The Soviet Union is still consuming large quantities of edible raw materials, mainly fats and oils, for technical purposes. During 1957, for example, about 360,000 tons of vegetable oils will be expended for the production of soap, drying oil, oleine, stearin, and other nonfood products.

A particularly large amount of edible fats is employed in soap manufacture. To replace them in this production, it is necessary, first of all, to increase the output of fat substitutes obtained from petroleum raw materials (synthetic aliphatic and naphthenic acids) as well as from wood products, such as rosin and tall oil. This requires expansion of the production of tall oil as rapidly as possible; the raw material for this, sulfate lye, the waste product of the cellulose-paper industry, is readily available. Second, it is necessary to develop the production of synthetic detergents.

The costs involved in the processing of aliphatic substitutes and detergents based on petroleum products are significantly lower than for detergents based on oleaginous crops. A ton of solid aliphatic acids obtained from edible oils costs 8,200 rubles, whereas synthetic oils processed from paraffin costs only 4,800 rubles. A ton of foaming powders produced from petrochemical raw material will cost not more than 1,100 rubles and a ton of 60-percent household soap manufactured from oleaginous and animal fats costs about 4,500 rubles.

Capital investment per unit of capacity in the construction of an enterprise for the production of synthetic detergents is 10 percent less than for the construction of soap plants. It is also important that the capital investments for the construction of shops for foaming agent production will be liquidated in 2-2.5 years.

However, the production of aliphatic substitutes and synthetic detergents in the USSR is still quite unsatisfactory. With the exception of the output of synthetic detergents at the Shebekinskiy Combine of the Belgorodskiy Sovnarkhoz and the production of small quantities of "sul'fonol" at pilot plants, the industrial production of synthetic aliphatic substitutes at present is nonexistent.

Several years ago, the Petroleum Institute of the Academy of Sciences USSR, for the first time anywhere in the world, worked out a method for the direct oxidation of low-melting paraffin which will permit the production of aliphatic alcohols preparatory to the production of the powder "Novost'." But this method has still not been widely applied. It is true that the situation for the manufacture of aliphatic alcohols will be much improved after completion of the construction of a special shop at the Shebekinskiy Combine in 1958. Another such shop is planned for the Volga-Don Combine, now under construction.

The introduction of the new method on a large scale requires an increase in reserves of low-melting paraffin, but little of this is produced by Soviet refineries. This tends to create a disproportionate balance between paraffin production and satisfaction of the industrial requirements for synthetic aliphatic alcohols.

Production of synthetic aliphatic acids is also contemplated by USSR refineries, but construction of special shops for this type of operation is being delayed. During the first half of 1957, for example, the construction-assembly work on the aliphatic acid shop at the Chernikovskiy Plant was fulfilled 10 percent and at the Novo-Kuybyshev plant only 0.5 percent.

The Ministry of Chemical Industry is delaying the construction of a shop for the production of "sul'fonol" by the chlorine method. Plans called for its completion by 1955, but so far it has not been completed. The drawing up of plans for a second shop for this type of production has not even been started.

The All-Union Scientific Research Fats Institute has worked out formulas for four basic varieties of detergents to satisfy the various requirements of segments of the economy. The first of these is for the laundering of silk and wool fabrics; the second for silk, wool, and cotton fabrics; the third only for cotton fabrics; and the fourth for coarse fabrics and for industrial purposes. The aliphatic substitutes going into the composition of the first three detergents consist of synthetic aliphatic alcohols, "sul'fonol," and sulfonate. Detergents designed for laundering coarse fabric and for industrial requirements will be manufactured on the basis of "azolyat," of the purified contact of G. S. Petrov, and of scouring agents. The content of active organic parts through the introduction into the detergents of beneficial additives amounts to 20-25 percent.

The beneficial additives include the salts of phosphoric acid (based on pyrophosphates), sodium sulfate, calcined soda, sodium metasilicate, and carboxymethyl cellulose. The introduction of 10-30 percent polyphosphates (tripolyphosphate, hexametaphosphate, tetrapyrophosphate, etc.) into the detergents significantly increases the foaming action.

The small admixture of one of the cellulose esters, carboxymethyl cellulose, is also necessary. This substance, introduced into the formula for detergents in the amount of 2-3 percent, guarantees the retention of the wash impurities in the foaming solution. Unfortunately, the production of carboxymethyl cellulose, despite its need by the synthetic detergents industry as well as by a number of other branches of industry (in particular, the textile industry, where this product replaces starch), is very small. -- G. Torsuyev and V. Popov, Engineers

KUSTANAY PLANT INCREASES ARTIFICIAL FIBER OUTPUT -- Alma-Ata, Kazakhstanskaya Pravda, 4 Dec 57

The output of the Kustanay Artificial Fiber Plant will be increased 16 percent.

SYNTHETIC CORUNDUM PRODUCTION OF USSR CHEMICAL ENTERPRISE -- Moscow,
Promyshlenno-Ekonomicheskaya Gazeta, 8 Dec 57

The construction of a shop for the production of synthetic corundum has been started at the Kirovakan Chemical Combine. This shop will have the largest capacity for this type of production in the Soviet Union. The shop will go on stream during the fourth quarter of 1958.

[Comment: This is the first instance observed in the Soviet press of the production of synthetic corundum by a USSR chemical enterprise.]

II. PETROLEUM AND GAS INDUSTRIES

USSR in General

Miscellaneous

STATE PLANNING COMMISSION CHAIRMAN OUTLINES GOALS FOR OIL, GAS IN 1958 -- Moscow, Pravda, 20 Dec 57

I. I. Kuzmin, chairman of Gosplan (State Planning Commission) USSR, outlines production goals and capital investments to be made in the oil and gas industries in 1958.

[For complete text of the article, see Current Digest of the Soviet Press, Vol IX, No 31, 29 January 1958, pp 6, 10-12.]

CAPITAL INVESTMENTS IN OIL, GAS INDUSTRIES INCREASED -- Moscow, Na Stroitel'stve Truboprovodov, 22 Dec 57

In 1958, the USSR plans to lay 2,900 kilometers of gas lines and 2,100 kilometers of crude oil and petroleum product lines and to supply 10.7 billion cubic meters more gas to consumers.

Preliminary results for 1957 indicate that 50 percent more gas and crude oil was extracted than in 1956.

The opening of the Shebelinka-Dnepropetrovsk and Mukhanovo-Kuybyshev gas lines in 1957 are considered two of the most important projects for the expansion of the USSR economy in 1958.

The goal in 1958 is to extract and produce 10.7 billion cubic meters more gas than in 1957. This is an increase of 52 percent over 1957 output. The major trunk gas lines are expected to transport 6.5 billion cubic meters more gas than in 1957, an increase of 82.8 percent over 1957.

More money will be spent in 1958 than in 1957 to speed up the expansion of the petroleum and gas industries. Capital investments in 1958 will amount to 4 billion rubles, 729 million of which will be invested in the gas industry.

SOVNARKHOZ ASKS GOSPLAN TO HELP OBTAIN DESALTING AGENT -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 24 Nov 57

"Groznyy Oil Refinery constantly holds up delivery of neutralized dark contact to Tatarskaya ASSR. Quality of contact low. Fields of Aznakeyavneft' Oil Field Administration likely to shut down. Request your intervention."

This was a telegram sent by the Tatarskiy Sovnarkhoz (Council of National Economy) to Gosplan RSFSR.

The contact is a by-product of refining and is the basic agent used to remove water and salt from crude oil. Its shortage has been affecting the oil fields of the Tatarskaya ASSR the year round. The shortage also affected the operations of the Bashkirskaya ASSR oil fields at Tuymaza and Oktyabr'skiy in the summer of 1957.

Inasmuch as the oil fields cannot ship crude oil below standard to the refineries, they are forced to shut down certain wells. As a result, a large quantity of crude has been accumulating in the storage tanks at the fields and hundreds of tons of the light fractions have evaporated.

NEW OIL PIPELINE BEGINS OPERATIONS IN STALINGRAD AREA -- Moscow, Pravda, 22 Nov 57

A new pipeline has started to pump crude oil from the Stalingrad area oil fields to the new Stalingrad Oil Refinery, whose first unit is in the testing stage.

[Comment: For complete text of the article see Current Digest of the Soviet Press, Vol IX, No 47, 1 January 1958, p 20.]

Gas Operations

1958 PLAN FOR EXPANSION OF GAS INDUSTRY -- Moscow, Na Stroitel'stve Truboprovodov, 25 Dec 57

As in previous years, the USSR gas industry will be expanded at a rapid pace. The 1958 goal is to extract and produce nearly 11 billion cubic meters of gas than in 1957. This is an increase of 52 percent over the volume extracted in 1957 and amounts to as much as was produced in the USSR in 1955.

Extraction is to be increased considerably at the Shebelinka Gas Field in Khar'kovskaya Oblast, from which a major gas line to Dnepropetrovsk was laid in mid-1957. The increase in extraction and the construction of this line make it possible to supply more than 3 billion cubic meters more gas per year to consumers.

Considerable increases are expected in Stavropol'skiy Kray, which is scheduled to extract nearly 2.5 billion cubic meters more than it supplied in 1957; Stalingradskaya Oblast, nearly 1.5 billion cubic meters more; Azerbaydzhan, one billion cubic meters more; and Saratovskaya Oblast, 400,000 cubic meters more. Extraction is to increase in other gas areas also. Moreover, more petroleum gas and more synthetic gas from coal and shale are to be produced.

The major pipelines are the Main Administration of Gas Industry USSR are scheduled to transport nearly 7 billion cubic meters, or 89 percent, more than in 1957. Five cities, among them Gor'kiy and Belgorod, will obtain gas in early 1958 and four more cities, including Magnitogorsk and Lisichansk, will have gas by the end of the year. Moscow's supply will be increased by 1.3 billion cubic meters over 1957.

The extraction of gas from coal underground is also to be increased. The underground coal gasification stations are expected to produce 26 percent more gas than in 1957.

Capital investments in the industry in 1958 will be over 700 million rubles more than in 1957. This is more than 60 percent higher than the amount spent in 1957.

During the year, 2,500 kilometers of main trunk gas lines are to be laid and opened. Two of the most important gas line construction projects ahead are the line from Serpukhov to Leningrad and from Shkapovo in the Bashkirskaya ASSR to Magnitogorsk. At least 50 percent of the pipe in the first line should be laid in 1958, so that it can be finished in mid-1959 and Leningrad can obtain gas in the third quarter of 1959. The 410-kilometer line from Shkapovo should be finished in 1958 to provide petroleum gas to the Magnitogorsk Metallurgical Combine.

During the year, construction will be started on lines to supply gas to six republic capitals. Construction will get under way on lines from Karadag to Tbilisi by way of Akstafa, from Akstafa to Yerevan, from Dzharkak to Tashkent by way of Bukhara, and from Dashava to Minsk, with offsets to Vil'nyus and Riga. These lines are scheduled to open during the period 1959-1960 and most of the preparations must be finished in 1958 so that the basic part of the construction can be completed in 1959.

In 1958, the Saratov-Gor'kiy line should be extended to Penza. In addition, the lines from Promyslovaya to Astrakhan' and from Kyzyl-Kum to Krasnovodsk by way of Kumdag are also important to the future of the national economy.

Besides laying more than 600 kilometers of pipe in the parallel Stavropol'-Moscow trunk line, it will be necessary to build three new and expand three existing compressor stations by installing 20-25 gas turbine compressors which, beginning in 1959, will sharply increase the supply through the line to Moscow and Leningrad.

Another important project is the laying of a gas line from pipe 1,020 millimeters in diameter from Kanevskaya to Vorshilovgrad by way of Rostov. This is the first time that such wide pipe will be used in pipeline construction. The line should be built by 1959.

In 1958, underground gas storage facilities will have to be built on the outskirts of Moscow and Kiev. These facilities should be ready for testing in the second half of 1958.

In addition to the above projects, in 1958 the Main Administration of Gas Industry USSR is to build and put into operation 2,060 kilometers of crude oil and petroleum product lines with 23 along-the-way pumping stations. Of these lines, 517 kilometers will be a products line from Omsk to Novosibirsk and 970 kilometers an extension of the Tuymaza-Omsk crude oil line to Irkutsk.

In 1958, some 133 million rubles is being allocated for the construction of quarters for the workers and services personnel of the above main administration. This is approximately 80 percent more than was used in 1957. During the year, about 73,000 square meters of living space should be made available, in addition to schools, medical centers, and kindergartens.

RESERVES AT AZERBAIDZHAN GAS DEPOSITS SURPASS SARATOV -- Moscow, Izvestiya, 22 Nov 57

Commercial gas reserves at the two large gas-condensate deposits of Karadag and Kyanizadag in Azerbaydzhan are much larger than those at Saratov and approximately as large as those at Dashava in the Ukraine.

The USSR now extracts natural gas in the eastern and western parts of the Ukraine; in the North Caucasus; in Saratovskaya, Kuybyshevskaya, and Stalingradskaya oblasts; in Central Asia; and in the Komi ASSR. In addition, explored reserves are found in Siberia, Bukharskaya Oblast of Uzbekistan, Tadzhikistan, and Turkmenistan.

TRANSCAUCASUS GAS PIPELINE -- Moscow, Izvestiya, 22 Nov 57

With the discovery of natural gas at Karadag and Kyanizadag in Azerbaydzhan, Glavgaz (Main Administration of Gas Industry) plans to build a major gas line from Karadag to Kirovabad, Akstafa, and Tbilisi, with a branch from Akstafa to Yerevan, from 1958 to 1960.

[Comment: For condensed text of the article, see Current Digest of the Soviet Press, Vol IX, No 47, 1 January 1958, p 23.]

LARGE-SCALE GAS PROGRAM REQUIRES MORE DRILLING, IMPROVED EQUIPMENT -- Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 8 Dec 57

The CPSU is charging the gas industry with the responsibility of increasing its extraction and production of gas within the next 10-15 years to 13-15 times the present level, that is, to increase the output to approximately 270-320 billion cubic meters in the period 1970-1972.

According to expectations, in 1965 extraction and consumption in the European USSR will exceed the over-all increased demands for all types of fuels (coal and dark products). It is expected that the over-all output of natural, petroleum, and synthetic gases will be increased, in terms of conventional fuel, to the present level of extraction of coal in the Don, Moscow, and Pechora basins.

To ensure this increase, the search and exploration for gas must be increased drastically, particularly in the most promising areas of the North Caucasus, along the Volga, in the Caspian Sea area, Ukraine, Azerbaydzhan, Central Asia, and West Siberia.

This large-scale drilling program will require light drilling rigs to drill to depths of 2,500-3,000 meters, smaller size turbodrills, and high-grade drill pipe 2 7/8 and 3 1/2 inches in diameter.

The gas industry does not have sufficiently sealed casing for use in wells with high pressure. It also lacks nonsleeve pipe, whose production has been delayed by the Taganrog Pipe Plant.

Long-distance pipelines are to be built to supply gas to the consumers. Pipe manufacturers must drastically increase the output of pipe 420-820 millimeters in diameter, improve its durability, produce thin-gauge pipe, and start the production of pipe 1,020 millimeters in diameter.

The USSR has made some strides with compressor stations along the gas lines. The Gor'kiy "Dvigatel' Revolyutsii" Plant is producing piston-type gas compressors with a capacity of 1,000 horsepower and will soon be producing reliable units with double this capacity. The Nevskiy Plant imeni Lenin has mastered the production of single-stage centrifugal compressors driven by gas turbine and electric motor.

However, because of the great use of fuel and metal per unit of capacity, neither of these machines now meets the demands of the gas industry. Design engineers must design higher capacity and high compression ratio compressors in which less metal is used per unit of capacity.

Production of piston-type compressors of 2,000, 3,000, and 5,000 horsepower must be mastered. Likewise, centrifugal compressors with capacities from 5,000 to 12,000 horsepower must be produced, and the compression ratio of the single-stage compressors must be increased to 1.25-1.30.

The production of shut-off devices, particularly various-size stopcocks, has not yet been organized. The Myshega Plant in Tul'skaya Oblast, the only producer of these stopcocks, has been holding up the output of these pneumatic and electrically controlled units.

The high tempo of expansion of the gas industry poses the problem of the method and organization of the gathering of natural and petroleum gases. At present, when these gases are fed into the main trunk lines, they are highly humid and contain impurities, which leads to crystallization and subsequent plugging of some parts of the line and eventually to stoppages in the flow of gas.

Caucasus

OIL DRILLING IN STAVROPOL' REGION -- Moscow, Na Stroitel'stve Truboprovodov, 20 Dec 57

Pyatigorsk -- Exploration for oil is under way in eight rayons of Stavropol'skiy Kray.

Geologists have recently struck oil in Kalmytskaya Autonomous Oblast, where several test wells have been drilled. The first proved to be a gusher with an output of 100 tons per day.

[Comment: This oblast is a part of Stavropol'skiy Kray on the eastern side of the Volga River. It was set up by reducing the area of Astrakhan'-skaya Oblast.]

Ukraine

NEW OIL AND GAS RESERVES FOUND IN POLTAVSKAYA OBLAST -- Kiev, Pravda Ukrainy, 29 Nov 57

The Novyy Senzhar Drilling Office has opened up oil and gas reserves in Poltavskaya Oblast that exceed the pools of the well-known deposit at Radchenkovo. The office has finished drilling four oil and gas wells and will complete four more by the end of 1957. The first flowing oil well will soon undergo tests.

Well No 16 was drilled in 17 days with the turbodrill at an average speed of 408.2 meters per machine month. It will yield at least 4 million cubic meters of gas per day.

At the site of Well No 10, there are six more gas horizons and two oil horizons. The drilling crew plans to bore to 3,000 meters.

Moscow, Na Stroitel'stve Truboprovodov, 11 Dec 57

Poltava -- A new deposit of oil and gas has been found near the village of Chernukhi. The test well flowed natural gas but an oil-bearing strata was also discovered. This is the second oil and gas deposit opened in Poltavskaya Oblast in 1957.

Ural-Volga Region

TATAR OIL INDUSTRY CHIEF REPORTS ON INDUSTRY -- Moscow, Izvestiya, 18 Dec 57

V. Shashin, chief of the Administration of Oil Industry of the Tatarskiy Sovnarkhoz, reports on the developments in the republic's oil industry.

[For condensed text of the article, see Current Digest of the Soviet Press, Vol IX, No 51, 29 January 1958, pp 29-30.]

Moscow, Pravda, 28 Nov 57

Kazan' -- Tatar drillers drilled 190,000 meters more with the same amount of machinery in 11 months of 1957 than in the same period of 1956.

NEW OIL REFINERY IN BASHKIRIYA -- Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 13 Dec 57

Ufa -- The largest oil refinery in the USSR has gone into operation at Chernikovsk, Bashkirskaya ASSR. In addition to being a primary distillation and cracking plant, it will produce various lube oils and fatty acids. It has already produced many tons of high-grade gasoline and diesel oil. In the near future, a block of units will go into operation to refine high-octane fuel. Once the refinery reaches its designed capacity, it will be producing millions of tons of various petroleum products.

Central Asia

KAZAKHSTAN THIRD IN EXPLORED OIL RESERVES IN USSR -- Alma Ata, Kazakhstanskaya Pravda, 11 Dec 57

Kazakhstan ranks third, after the RSFSR and Azerbaydzhan, in explored petroleum reserves in the USSR. Large-scale geological exploration is now under way in the area between the Urals and Emba. A study is to be made of the petroleum-bearing possibilities of the Balkhash-Alakul', Iliy, and Chu-Sary-Suy depressions.

Alma Ata, Kazakhstanskaya Pravda, 14 Dec 57

Gur'yev -- The Karaton Drilling Office drilled 77 wells in 1957.

KIRGIZ OIL OUTPUT UP FOURFOLD OVER 1955 -- Moscow, Na Stroitel'stve Truboprovodov, 20 Dec 57

Dzhalal-Abd -- Kirgiziya is now extracting four times as much crude oil as in December 1955. The Izbaskent Oil Field is very rich in oil. It has only one seventh as many wells as in the adjacent Kok-Tash and Changyr-Tash oil fields, but it is producing 3.5 times as much oil.

In 1958, new wells are to be built up at Izbaskent. Efforts are being expanded also to master the new Karabulak and Papan petroleum deposits.

Azerbaydzhan

673 WELLS RESTORED -- Moscow, Pravda, 30 Nov 57

Baku -- In the past 11 months, 673 idle oil wells have been restored in Azerbaydzhan. More than 2 million tons of crude oil were extracted as a result of pressuring.

Baku, Bakinskiy Rabochiy, 28 Nov 57

In the past 11 months, the Neftechalanef't Consolidated Oil Field restored 130 wells, 26 of them by means of reborring.

[Comment: Apparently Neftechalanef't has been changed from an oil field administration to a consolidated oil field, having been reported as such both in this source and in Bakinskiy Rabochiy, 29 August 1957. The latter source referred to its Oil Field No 2 as a division (tsekh) of the consolidated field. As a field administration, it had Oil Fields No 1, 2, and 3.]

FIELD ADMINISTRATION ADDS TWO MORE SECTORS TO OPERATIONS -- Baku, Bakinskiy Rabochiy, 5 Dec 57

The Siazanneft' Oil Field Administration has acquired two more petroleum-producing sectors by the discovery of oil deposits at the Zeyva and Zagly sites, where two test wells have produced light, high-octane crude oil.

The oil from these two wells will be transported to the Amirkhangly sector, the site of the administration's Oil Field No 2 which, in 1957, put more than 50 new wells on stream from drilling.

[Comment: Bakinskiy Rabochiy of 22 November 1956 reported that this field started operations in late 1955, and Bakinskiy Rabochiy of 17 March 1956 reported that it was producing 70 percent of the oil in the field administration.]

QUARRIED PETROLEUM SAND PROCESSED INTO LIQUID -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 5 Dec 57

The Kirmak Mountain in Azerbaydzhan has seams of petroleum sands which lie at or close to the surface.

Geologists from the Leninneft' Oil Field Administration have determined that these seams contain at least 17 million tons of petroleum. Laboratory tests of these sands have provided some very interesting results. Each cubic meter of mountain earth contains an average of 148 kilograms of liquid fuel. The problem was how to extract this liquid from the sand. Scientists have suggested that these petroleum-bearing sands which lie at the surface should be processed by means of heat. In the laboratory, they were able to extract up to 95 percent of fuel from the sandstone.

The best temperature to which the petroleum-bearing sandstone should be heated is 350-500 degrees. At this temperature, the grain of the sand, the content of clay, and moisture do not affect the process. By this method, it is possible to extract 89-92 percent of the liquid, 4-10 percent of the gas, and about 4-6 percent of the coke contained in the sandstone.

This process provided the base for the construction of a sand-processing unit in Kirmak. This unit has been in operation 5 years and has proved that 80-85 percent of the petroleum can be extracted.

The sandstone is ground and screened, and then the screened sand is fed by auger to a shovel which feeds it to a cylindrical reactor of the thermal processing unit.

The cylindrical reactor is loaded separately with hot kilned sand and the rock which contains the petroleum. Petroleum gas is blown in from the lower end of the cylinder to heat and support the suspended mixture. The hot sand, mixed with the rock, passes its heat to the rock, from which petroleum eventually evaporates and then passes in vapor form to a chilling condensor, where it is transformed into liquid petroleum.

This successful experience with thermal extraction of petroleum has enabled the Azerbaydzhan government to decide upon building a powerful industrial unit in Kirmak.

The petroleum sand from the quarries will be transported by means of a suspended cable and will be automatically loaded into bunkers of the reactors, from where a heavy, oily liquid will pass through a pipeline to the oil refineries for refining into petroleum products.

AZERBAYDZHAN GAS INDUSTRY -- Baku, Bakinskiy Rabochiy, 12 Dec 57

Azerbaydzhan is surpassing its 1957 gas-extraction goal. The volume is more than double that of 1955.

During the past 2 years, about 125 kilometers of major and distributing gas lines have been laid in the Apsheron Peninsula. Successful development of new gas deposits has made it possible to convert the republic's oil refineries, the electric power stations of the republic's power administration, and many of the industrial enterprises in Baku and Sumgait from liquid fuel to gas, thereby releasing approximately 2.5 million tons of liquid fuel for consumption in other areas of the USSR.

The goal in 1958 is to release 400,000 tons of mazut and 100,000 tons of coal from the electric power stations for other purposes.

The opening of new gas lines will make it possible to supply gas to numerous industrial enterprises and hundreds of households in Kirovskiy, Azizbekovskiy, and other rayons of Baku.

To meet the increasing demands of Azerbaydzhan, Georgia, and Armenia for gas, the Ministry of Petroleum Industry Azerbaydzhan SSR is planning to increase its industrial reserves of natural gas to 20 billion cubic meters in 1958 and 25 billion in 1959. If these plans are fulfilled, not only will the fuel and power structure of the three republics be changed drastically, but extraction of 6.6 billion cubic meters a year will be realized by the end of 1960.

Gas now accounts for approximately 70 percent of the fuel balance of Azerbaydzhan. This figure is to be increased to 90-95 percent in the future.

Because of the lack of gasoline plants and sealed tanks, there are enormous losses of gas and of gasoline fractions found in the gas condensate from the Karadag deposit. These losses run into tens of thousands of tons a year. There are also enormous losses of finished petroleum products at the refineries and during storage. Because of the lack of gas-gathering facilities and a major gas line to transport the gas, 300,000 cubic meters of gas is lost each day at the fields of the Siazanneft' Oil Field Administration. As a result, 49,000 tons of propane and butane are lost each year.

According to estimates, approximately 13 tons of compressed gas a day, or 4,745 tons a year, is required to provide enough cylinder gas to 13,000 apartments in Kirovabad. If 25 percent of the compressed gas in the future is to be used to supply gas in cylinders to apartments, 116,440 apartments with approximately 500,000 occupants can be supplied with enough gas a year by this means.

The use of liquid gas in cylinders for domestic needs is very beneficial, since it becomes unnecessary to build costly gas lines and other installations. Approximately one third as much metal is required and capital investments are only about half as much as in the ordinary supply through gas lines. One cylinder filled with 22 kilograms of compressed gas is sufficient for a family of 4-5 persons for a whole month.

The Azerbaydzhan gas industry is now under the jurisdiction of the republic's petroleum ministry. It is probable that a separate main administration for the gas industry will be set up in the republic to operate with the Main Administration of Gas Industry USSR. The Ministry of Petroleum Industry Azerbaydzhan SSR and the Baku Executive Committee are now discussing this matter.

NEW TECHNOLOGY INTRODUCED TOO SLOWLY INTO REFINING -- Baku, Bakinskiy Rabochiy, 3 Dec 57

The increase in refining of fuel and lube oils expected of the Azerbaydzhan Petroleum Refineries Association in the Sixth Five-Year Plan depends to a great extent on the introduction of new engineering, something which has failed to keep pace with the great demands of today.

Several years ago, the Azerbaydzhan Research and Development Institute for Petroleum Refining developed new technology for high-temperature decomposition of crude oil bottoms such as gudron. Tests at its pilot units provided excellent results.

In 1956, the new technology was to have been used in the testing and experimental unit in the Oil Refinery imeni Vano Sturua, but problems arose immediately because construction agencies delayed the construction of such a unit. The unit was finally put into service in mid-1956 but only ten very short runs, from one to 6 days, were made because the remaining time had to be spent in making necessary repairs to the unit, and because of the lack of proper preparations.

As a result of slow pace of construction, the poor quality of repairs, and constant delays in building material supply, this new technology still has not been mastered. Moreover, no date has been set for its introduction into the industry.

That advanced technology has not been given proper attention can be seen from another instance. The Baku refineries prepare the crude for refining by thermochemical means, a process seriously inadequate because a considerable amount of de-emulsifier is required. Moreover, the de-emulsified crude is left to settle for long periods and this results in the heavy loss of light fractions.

In 1951, the institute developed a new method of simultaneous dehydration and desalting of Baku crudes. The principle part in the new de-emulsifying unit is the mixer, a design of which had been recommended by the institute when it developed the new technological process.

The designing of the test and experimental unit was entrusted to Giproazneft' (Azerbaijdzhan State Institute for Planning), but this institute rejected the design of the other institute and substituted its own. As a result, the construction of a relatively small test and experimental unit for dehydrating and desalting of crude oil was delayed for 3 years.

Finally, the mastering of the unit began in 1954. The first tests proved that the design of the mixer of Giproazneft' was unsuitable for industrial purposes and this institute had to revert to the design of the mixer proposed by the research and development institute. The mixer was made by the Baku Machine Building Plant "Bakinskiy Rabochiy" but the mastering of this unit has not yet been started.

In 1953, the research and development institute developed a catalytic-cracking catalyst from natural activated clay similar to the bentonite found at Khanlar.

The Ministry of Petroleum Industry Azerbaydzhan SSR decided to test the new technology at the catalyst pilot factory, which was to be rebuilt and adapted for the production of catalyst from Khanlar bentonite. However, 2 years have passed and reconstruction of the factory has not yet been started.

The introduction of new engineering and technology into the Azerbaydzhan oil refineries depends on the construction agencies of the republic's oil ministry and on how these projects are supplied with materials.

The research and development institutes develop new methods but there has been a laxity to put these methods into use.

III. FERROUS METALLURGY

Production

KAZAKHSTAN COMBINE PLANS HIGH ANNUAL PRODUCTION -- Minsk, Sovetskaya Belorussiya, 5 Dec 57

In 1965, the Sokolovsk-Sarbay Ore Concentrating Combine in Kazakhstan will be producing 20 million tons of ore annually.

The 7-year plan provides for exploitation of the Kachkanarskoye magnetite iron ore deposit. An ore concentrating plant will be built on the basis of this deposit which will produce almost 15 million tons of ore annually.

On the basis of the Lisakovskoye limonite ore deposit, an ore concentrating combine is to be built which, by the end of the 7-year plan period, will be producing 16.5 million tons of ore annually. In addition, the initial production capacity of the Kustanay Metallurgical Plant will be set up on the basis of the ore deposit and the concentrating plant.

AMURSTAL' SHOP STEPS UP FURNACE OUTPUT -- Khabarovsk, Dal'niy Vostok, No 6, Nov/Dec 57, p 140

In 1955, the open-hearth shop of the Amurstal' Metallurgical Plant produced 6.98 tons of steel a day per square meter of furnace hearth area. In 1956, the daily average was increased to 7.59 tons of steel.

LENINRUDA TRUST AHEAD OF SCHEDULE -- Moscow, Trud, 28 Nov 57

The Leninruda Trust has fulfilled its 11-month plan ahead of schedule. The trust produced 550,000 tons more ore than for the corresponding period of 1956.

USSR STEEL PIPE PRODUCTION ON INCREASE -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 27 Nov 57

After World War II, the USSR pipe industry became the second largest producer of pipe in the world. Since the war, new pipe plants have been built. A large, fully integrated plant was built near Tbilisi which produces primarily pipe for the petroleum industry. In 1956, this plant produced 218,000 tons of products. The Baku Pipe Rolling Plant produced 157,000 tons of pipe in 1956.

The reconstructed Nikopol' Southern Pipe Plant now produces more than 2,000 different size pipes from 130 grades of steels and alloys. In 1940, the plant produced 83,700 tons of pipe and, in 1956, 352,000 tons. Production at the Chelyabinsk Pipe Plant, which is the largest in the Soviet Union, exceeds 600,000 tons of pipe a year.

In the initial 5-year plan periods, the Ukrainian SSR produced most of the pipe in the USSR. Now, the Ukrainian SSR produces only 40 percent, the Urals 30 percent, and the Central Region, North Caucasus, and Transcaucasus areas the remaining 30 percent.

USSR PER-CAPITA CASTINGS PRODUCTION HIGH -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 8 Dec 57

In 1913, the production of castings in the USSR amounted to 3.5 kilograms per person. At present, it is almost 60 kilograms.

NEW RAILWAY CONSTRUCTION TO REQUIRE MUCH STEEL -- Moscow, Sovetskaya Rossiya, 3 Dec 57

In the Sixth Five-Year Plan period, 65,000 kilometers of new rails will be laid. A running meter of rail weighs more than 50 kilograms. Therefore, more than 3.2 million tons of steel will be needed for this purpose.

About 100,000 tons of steel are needed for the construction of a thermal electric power station with an output of 300,000 kilowatts and 400,000 tons for the construction of a hydroelectric power station the size of the Dneproges Station.

Construction

NEW USSR IRON ORE CONCENTRATING COMBINES PLANNED -- Alma-Ata, Kazakhstanskaya Pravda, 21 Nov 57

In the Sixth Five-Year Plan period, the Bol'shoy Turgay Region will become a large iron ore basin. The Sokolovsk-Sarbay Ore Concentrating Combine is already producing, and preparations are now being made for the construction of the Lisakovsk Ore Concentrating Combine. Geologists have completed investigating the Kacharskoye Deposit. The ores of this deposit are of exceedingly high quality. Much of the ore is so-called open-hearth ore.

Plans for the Kachar Ore Concentrating Combine have already been started. The combine will be under construction in the current 5-year plan period. The deposits of ore are to be worked by the open-cut method. A new mining town will be built on the shores of Utyugun-Kul' Lake. The Kachar Combine will become the third largest mining enterprise in the Bol'shoy Turgay Region.

LARGE METALLURGICAL PLANT PLANNED FOR KARAGANDA -- Alma-Ata, Kazakhstanskaya Pravda, 4 Dec 57

More than 6 billion rubles was allocated for the construction of the Karaganda Metallurgical Plant, which will be comparable in output to the Magnitogorsk Metallurgical Combine.

More than 1,000 volunteers from Bulgaria, in addition to workers from all over the Soviet Union, have come to build the plant.

KRIVOY ROG PLANT TO HAVE NEW BLAST FURNACE -- Kiev, Pravda Ukrainy, 10 Dec 57

The Krivorozhstroy Trust has started construction of blast furnace No 4 of the Krivorozhstal' [Krivoy Rog] Metallurgical Plant. This furnace will be the largest in the Ukrainian SSR. It will produce as much pig iron per day as blast furnaces No 1 and No 2 together.

Alloys and High-Grade Steel Production

STEEL FROM PRECISION CASTING INCREASES -- Moscow, Stanki i Instrument, No 12, Dec 57, p 38

The volume of production of precision casting in tool producing plants has recently increased 400 percent. Parts for measuring, fitting-assembly, and auxiliary tools have accounted for 84 percent of the total increase, woodworking tools 6 percent, and metal-cutting tools for only 10 percent. There are considerably more cast cutting tools issued by tool shops of the machine-building plants (knives and miscellaneous cutters, drills and reamers, end milling cutters, inserted blade (nasadnyye) milling cutters). The cost of cast tools is 50 percent lower than that of tools made from rolled or forged iron; in fact, the difference is even greater than that in view of the small volume of production.

NEW ALLOYED IRON IMPROVES QUALITY OF IRON CASTINGS -- Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 27 Nov 57

To improve the quality of iron castings, an iron produced from expensive chromium-nickel ore was used until recently by the Rubtsovsk Altay Tractor Plant. The plant now uses an inexpensive natural alloyed iron produced from Orsk-Khalilovo ore. The percent of casting rejects has decreased, and the cost of charges has been sharply reduced.

Technology

URAL PLANT DEVELOPS NEW METHOD TO IMPROVE IRON CASTINGS -- Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 1 Dec 57

The Ural Heavy Machine Building Plant has successfully completed tests of a new method to remove crusts from iron and steel castings.

A cast item is put into a molten salt bath to which a direct electrical current is applied. It formerly took 8-10 hours to remove these crusts from large and complex castings, but it takes only 30-40 minutes by using the new method.

The new method is particularly economical in removing crusts from precision castings having complex forms.

CONTINUOUS CASTING MACHINE PROVES EFFECTIVE IN NOVO-TULA PLANT -- Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 5 Dec 57

Since the beginning of 1957, almost 9,000 tons of various grades of steel have been cast on the continuous casting machine at the Novo-Tula Metallurgical Plant.

Improvements continue to be made on the casting machine to increase the production of steel.

STEEL-VACUUMING UNIT ASSEMBLED AT STALINGRAD PLANT -- Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 13 Dec 57

A unit for vacuuming steel has been assembled at the Stalingrad Krasnyy Oktyabr' Metallurgical Plant.

USE OF OXYGEN TO STEP UP METALLURGICAL PRODUCTION -- Kiev, Pravda Ukrainy, 13 Dec 57

An oxygen station has been put into operation at the Dneprodzerzhinsk Metallurgical Plant imeni Dzerzhinskiy. By using oxygen, open-hearth shop No 3 will increase production 15-20 percent.

Scrap Metal Collection

MOSCOW YOUTHS COLLECT SCRAP -- Moscow, Moskovskaya Pravda, 19 Nov 57

In response to the call of the Moscow City Committee of the Komsomol, about 200,000 school youths, young workers, and others took part in collecting metal scrap. This collection continued for 40 days. The youth of Moscow collected more than 8,500 tons of scrap ready for resmelting.

The collection of metal scrap continues.

ADMINISTRATIVE DIRECTIVE TO SCRAP DEALERS -- Stalinabad, Kommunist Tadzhikistana, 23 Nov 57

The Tadzhik Vtorchermet (Secondary Ferrous Metals) Administration requests that all scrap deliverers confirm all of their bank requisitions to the administration for the payment of metal scrap.

An accounting to scrap deliverers for metal scrap will be made by Vtorchermet immediately on receipt of bank requisitions.

Prospecting and Exploration

NEW IRON DEPOSITS EXPLORED IN KAZAKH SSR -- Alma-Ata, Kazakhstanskaya Pravda, 26 Nov 57

About 460 iron ore deposits have been explored in the Kazakh SSR.

It is time now to think about building a second metallurgical plant in Temir Tau.

RICH IRON ORE DEPOSITS FOUND IN UKRAINE -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 4 Dec 57

Rich deposits of iron ore have been found near the settlement of Bol'shaya Belozerka in Zaporozhskaya Oblast. The Belozerka Magnetic Anomaly holds many million tons of high-grade ore.

Somewhat earlier, a manganese ore deposit was discovered near the town of Bol'shoy Tokmak, which is also in Zaporozhskaya Oblast.

Miscellaneous

COMPOSITION OF KRIVROY ROG CONCENTRATING COMBINE -- Moscow, Gornyy Zhurnal, No 12, Dec 57; p 45

The Krivoy Rog Yuzhniy Ore Concentrating Combine consists of an open-pit mine with an annual output of 9 million tons of raw ore, a concentrating mill with an output of 9 million tons of concentrate containing 52 percent iron, and an agglomerating plant with an output of 5,250,000 tons of agglomerate.

INTRODUCTION OF 7-HOUR DAY INCREASES STEEL PRODUCTION -- Moscow, Trud, 30 Nov 57

Since the beginning of November, the steel-smelting shops of the Elektrestal' Plant have been working a 7-hour day. The initial results indicate that considerably more metal was produced than before. One brigade in Steel-Smelting Shop No 2 produced 10 percent, a second brigade 12 percent, and a third 19 percent above plan. Steel-Smelting Shop No 1 produced 10 percent above plan.

REFRACTORY PLANT NEEDS WORKERS -- Moscow, Vechernaya Moskva, 19 Nov 57

The Vnukovo Refractory Plant needs experienced mechanics, loaders, fitters, and helpers.

IV. NONFERROUS METALLURGY

Production

LENINOGORSK COMBINE INCREASES PRODUCTION -- Alma-Ata, Kazakhstanskaya Pravda, 28 Nov 57

The mining and concentrating mill personnel of the Leninogorsk Polymetallic Combine has already produced 22 million rubles' worth of products above plan. Total production is 11.5 percent greater than in the corresponding period of 1956. The mines of the combine have sent 180,000 tons of ore above plan to the concentrating mill.

The mining personnel of the Bystrushin Mine has produced more than 70,000 tons of ore above plan.

More than 2,100 workers have completed their annual tasks ahead of schedule. The Transferable Red Banner of the Vostochno-Kazakhstanskiy Sovmarkhoz (Council of National Economy) has been awarded to the personnel of the combine.

Alma-Ata, Kazakhstanskaya Pravda, 21 Nov 57

In 1957, the Leninogorsk Lead Plant of the Leninogorsk Polymetallic Combine has already produced 1,800 tons of above-plan crude lead. The plant has also produced much metallic cadmium and mercury.

TEKELI MINE PLEDGES HIGHER OUTPUT -- Alma-Ata, Kazakhstanskaya Pravda, 30 Nov 57

Putting level No 6 into operation at the Tekeli Mine has been delayed for more than a year. However, after the mine personnel made pledges, all efforts are being concentrated on this decisive level.

In September, the Mine imeni Ordzhonikidze in the Krivbas area challenged the Tekeli Mine to compete in production in honor of the 40th anniversary of the revolution. In accepting the challenge, the Tekeli Mine workers pledged to do away with lagging production and to make the mine one of the better ones in the nonferrous metallurgical industry by the end of 1957.

KADZHARAN COMBINE PRODUCES ABOVE PLAN -- Yerevan, Kommunist, 20 Nov 57

The Kadzharan Copper and Molybdenum Combine completed its 1957 plan for the production of molybdenum concentrate on 5 November. The plan for total production was fulfilled 104.5 percent.

Construction

UZBEK SSR BUILDS NONFERROUS METALLURGICAL ENTERPRISES -- Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 5 Dec 57

A number of nonferrous metallurgical enterprises are being built in the Uzbek SSR. The construction of a copper and molybdenum combine in Almalyk is under way. An electric power substation and an electrified railway high up in the mountains are being prepared for operation. A concentrating mill is being built. Within days, the combine will be processing several thousand tons of raw material.

Construction of the Altyn-Topkan Lead and Zinc Combine is being accelerated.

Technology

NEED FOR IMPROVED TECHNOLOGY IN PROCESSING COPPER ORES -- Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 27 Nov 57

In the future, USSR copper production growth will have to be made to a considerable degree by using oxide and mixed copper ores. The reserves of such ores at Dzhezkazgan and Almalyk are estimated at millions of tons. In the first 5 or 6 years of operation, the Almalyk Plant will process only copper oxide ores.

In the usual system of flotation the extraction of copper is not great, since part of the copper is lost in the tailings. Tens of thousands of tons of copper are lost in tailings produced from Kounrad oxide ores at the Balkhash Concentrating Mill. The proportion of copper extracted from ore from the Raymund Section at the Karsakpay Concentrating Mill has decreased to 30 percent. The only way to increase the yield of copper from difficult-to-concentrate oxide and mixed ores is to introduce the Mostovich method of flotation.

Experiments conducted on a semi-industrial scale by the Balkhash Copper Smelting Plant in conjunction with Gintsvetmet (State Scientific Research Planning Institute for Nonferrous Metallurgy) for processing Dzhezkazgan oxide ores from the Zlatoust Open-Pit Mine showed that 50 percent more copper is extracted by using the Mostovich method than by the usual method. The copper concentrate contained 30-35 percent copper instead of only 15-17 percent. Similar results were obtained in processing the Almalyk ores.

To process ore by the Mostovich process is more expensive than by the usual method, for, depending on the quality of the ore, an additional 4-6 tons of sulfuric acid is needed for each ton of copper in the concentrate and about 2-2.5 tons of iron chips or sponge iron.

It is often forgotten that oxide ore, which is not processed by the Mostovich method, is actually useless rock. From the national economic point of view it is better to process it for the copper than save it in dumps. It is understandable that the Mostovich method will prove most economical if inexpensive sulfuric acid and iron production are organized locally. Sulfuric acid production should be set up at the Almalyk Plant and the second section of the Dzhezkazgan Plant before they are put into operation.

The scientific research and planning institutes should find ways to improve further the Mostovich technology and to decrease the consumption of acid and iron for increasing the extraction of copper.

The Tashkentskiy and Karagandinskiy sovnarkhozes must give more attention to introducing the Mostovich method.

NICKEL RECOVERY METHODS -- Moscow, Tsvetnyye Metally, No 11, Nov 57, pp 36, 40

The sulfide technology for processing sulfur-free oxide ores cannot be considered satisfactory, since the nickel has to undergo repeated conversion. First, sulfur is introduced to produce a raw matte. Then it is oxidized and the nickel is again converted to NiO. In the eighth operation, metallic nickel is finally produced. By this method, nickel is extracted (less than 70 percent), some cobalt is obtained, and all of the iron remains in the slag.

Nickel is used primarily for alloying steel; therefore, metallic nickel can, to a considerable extent, be replaced by ferronickel, which can be produced by recovery smelting of nickel oxide ores. The production of this ferronickel excludes the consumption of sulfur-containing additions.

Blast furnace smelting is one of the best known recovery technologies. It ensures 100-percent recovery of nickel, cobalt, and iron in metallic form. The shortcoming of this method is the production of pig iron with a low nickel concentration (4-6 percent).

In connection with the discovery of considerable reserves of nickel oxide ores in the Ukraine, the question of using them has arisen.

In 1950, the Kiev Polytechnic Institute conducted laboratory experiments which demonstrated the possibility of totally recovering nickel from oxide ore and of leaving any desirable quantity of the iron in the slag. By changing the quantity of the reducing agent, the percentage of iron converted to metal was decreased from 90 to 43.6 percent. The extraction of nickel was approximately 100 percent. The concentration of nickel in the produced metal was twice as great (31.6 percent).

The good results obtained in the laboratory permitted testing the technology of selective recovery of nickel on an industrial scale. First industrial-scale heats were made in the open-hearth of the Kiev Bol'shevik Plant in 1950. A ferronickel was produced containing 25.4-26.5 percent nickel and .8-.9 percent cobalt, of which 79.6-83.7 percent of both elements was extracted.

Experiments have shown that recovery smelting of oxide ores is simpler and more economical than the sulfide technology.

Blast furnace smelting can be used for producing a product with a low nickel concentration (chromium-nickel pig iron). Blast furnace smelting ensures not only greater nickel extraction but also greater iron extraction.

It is feasible to produce a product with a greater nickel concentration (ferronickel) in large open-hearth furnaces by selective recovery. All grades of nickel-alloyed steels can be produced on the basis of nickel pig iron and ferronickel.

Calculations indicate that the cost of nickel in ferronickel will be less than the cost for metallic nickel which is produced from oxide ores by the sulfide method.

The proposed technology permits easy and quick mastery of the new raw material base and will ensure the Ukrainian plants of local nickel.

CHIMKENT PLANT PREPARES FOR ANTIMONY PRODUCTION -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 11 Dec 57

An industrial unit has been put into operation at the Chimkent Lead Plant for the production of commercial metallic antimony. Antimony is extracted from sodium antimonate which is a by-product in the refining of lead. Until recently, only a small part of the sodium antimonate was used in the reverberatory furnace. The metal that was produced from the sodium antimonate was used by the plant itself, and most of it was sold to other enterprises as an antimonite concentrate.

Assembling of units for the extraction of cadmium, tellurium, and thallium has begun at the Chimkent Plant.

WORK ON TECHNOLOGY AND METALLURGY OF RARE METALS WEAK -- Moscow, Pravda, 4 Dec 57

Industrial use of many rare metal deposits is at present held up because of insufficient study of the ores and because of the absence of satisfactory technological methods for concentrating and chemically processing them. The Academy of Sciences USSR is obligated to hasten its work in the technology and metallurgy of rare metals.

Prospecting and Exploration

KAZAKH SSR HAS HIGH PERCENTAGE OF MANY IMPORTANT MINERALS -- Moscow, Razvedka i Okhrana Nedr, No 12, Dec 57, p 8

Of the total USSR explored reserves of the most important kinds of minerals, the Kazakh SSR as of 1 January 1956 accounted for 62 percent of the lead, 43 percent of the zinc, 44 percent of the copper, 89 percent of the chromite, 44 percent of the tungsten, 21 percent of the molybdenum, and 54 percent of the phosphorites. Based on calculations for 1956 and 1957, the Kazakh SSR is the foremost area in the USSR in tungsten and molybdenum reserves.

In 1945-1947, tungsten and molybdenum deposits were found in Central Kazakhstan by G. I. Bedrov and M. A. Konoplyantsev. Ore concentrating plants are being planned on the basis of these deposits.

Since 1950, considerable reserves of niobium and zirconium have been found and explored in Kazakhstan. In 1954, placer deposits of titanium-containing minerals were found in the Turgay Depression; these placer deposits are being investigated.

In 1955, mercury was found in Kazakhstan which is favorable in geological and economic respects. Exploratory work is being conducted, and a search for other deposits of mercury has been set up on a large scale.

In 1956, prospecting operations disclosed new molybdenum, tungsten, and other nonferrous metal deposits in Central Kazakhstan. New, promising beds of kaolin salts and of borates have been found in West Kazakhstan. Much study is being done on the ores of the explored deposits. In 1950-1956, reserves of lead ore were found in Central Kazakhstan which will permit building large polymetallic industry enterprises in this area.

KAZAKH SSR HOLDS TREMENDOUS RESERVES FOR COPPER INDUSTRY -- Alma-Ata, Kazakhstanskaya Pravda, 7 Dec 57

Much lies ahead for workers in the USSR copper industry. Despite considerable success, USSR copper production is still below its possibilities. The industry does not provide enough copper for national economic requirements and, therefore, the copper industry retards the rapid growth of many important industries, particularly the power industry, which requires large quantities of copper.

The Kazakh SSR nonferrous metallurgical industry is largely responsible for providing Soviet industry with copper, since it is the chief source in the Soviet Union for the production of copper ore and the smelting of copper.

It is calculated that the Kazakh SSR holds half of all the copper reserves in the USSR. The republic has about 60 deposits. Only recently, large reserves of copper ore were found in the foothills of the Chingiz-Tau Range.

The Dzhezkazgan Copper Deposit is the gem of the Kazakh SSR copper industry and is considered the largest deposit in the USSR. The Dzhezkazgan ores do not contain zinc, which simplifies the technology for processing them. However, the former Ministry of Nonferrous Metallurgy and Gosplan USSR, despite the feasibility of developing the Dzhezkazgan Deposit, scattered funds in expanding the copper ore industry over other parts of the country where mining and processing of ore were not as favorable. This practice caused an insufficient material supply for the copper-producing plants in the Urals and the Kazakh SSR.

For example, in 1956, the Dzhezkazgan Mine Administration failed to produce thousands of tons of ore. In 1957, although the administration has increased ore production, some of the shafts continue to lag and have again failed to produce thousands of tons of ore. Furthermore,

the administration management gives little attention to economic questions and has failed to lower the cost of ore. A ton of ore costs 6 rubles above plan at the Pokro Shaft and 4 rubles at the Petro Shaft.

In 1960, ore production at the Dzhezkazgan Mine should be 2.5 times as great as in 1955. To achieve this production growth, a number of old shafts will be rebuilt, two new shafts will be put into operation, and the huge Zlatoust-Belovskiy Open-Pit Mine will be commissioned. However, slow construction and inadequate shaft and open-pit equipment create doubt that the intended plans will be fulfilled. As yet, the rebuilding of existing shafts has not been completed. These shafts were to have been rebuilt 2 years ago. Work on the open-pit mine is very slow.

Because of lagging ore production, the Balkhash Copper Smelting Plant had a shortfall of more than 3,000 tons of blister copper for the national economy in 1957.

In addition, the technological system in the basic shops of this plant is being violated. In 8 months of 1957, equipment in the metallurgical shop was idle for 363 hours and in the large concentrating mill 298 hours.

There are great possibilities for increasing the output of products by the plant. In 1956, the plant lost 2,500 tons of copper irretrievably by way of the smokestack. About 50,000 tons of sulfur is lost this way, from which 150,000 tons of sulfuric acid could be produced for use in the production of mineral fertilizers. The plant is doing almost nothing to correct this situation. Construction was started on a sulfuric acid shop 3 years ago, but worked bogged down and nothing is being done about it.

The Karsakpay Copper Smelting Plant is doing little to use its reserves. The mechanization of production processes at this plant is on a very small scale. All labor-consuming operations have to be done manually. Because of low mechanization, metal produced by the plant costs a little over 20 percent more than it does at the Balkhash Plant.

TITANIUM DEPOSITS FOUND NEAR TOMSK -- Moscow, Pravda, 4 Dec 57

In searching for titanium-bearing ores, geologists must direct their attention above all to finding rich placers left by ancient seas, similar to the Samotkanskoye Deposit, which was recently found in the Ukrainian SSR.

Success has already been achieved in this respect. In the southeastern part of the West Siberia plains, near Tomsk, titanium-zirconium placers have been found which are similar to the Samotkanskoye Deposit.

NEW MERCURY DEPOSITS FOUND IN KIRGIZ SSR -- Frunze, Sovetskaya Kirgiziya, 23 Nov 57

A new mercury deposit has been found in the southern Kirgiz SSR. The deposit is practically in a valley. Mining operations will be conducted by the open-cut method.

A secondary mercury deposit was found in Oshskaya Oblast. Recently, two lead deposits were found in the same area. One of the deposits can be quickly exploited.

LEAD MINE FULFILLED 1957 EXTRACTION PLAN -- Alma-Ata, Kazakhstanskaya Pravda, 30 Nov 57

The Maslyansk Mine of the Zyryanovsk Lead Combine has fulfilled its plan for ore extraction for 1957. In 2 or 3 years, the mine will be producing twice its present output.

BAUXITE AND MAGNESITE DEPOSITS FOUND IN KRASNOYARSKIY KRAY -- Moscow, Priroda, No 3, Mar 57, p 70

High-quality bauxite deposits have been found in the central reaches of the Tatarka River in Krasnoyarskiy Kray.

One of the largest high-quality magnesite deposits has also been found in this area.

NEW METAL DEPOSITS DISCOVERED IN KAZAKH SSR -- Alma-Ata, Kazakhstanskaya Pravda, 11 Dec 57

Besides nonferrous and rare metal deposits which are being worked in Central Kazakhstan, a number of new tungsten-molybdenum deposits have been found. The known reserves of ore at the Kounrad Copper Mine have greatly increased. Large deposits of tantalum-niobium and nickel ores have been found and are being investigated in the northern oblasts of the Kazakh SSR. Nickel ores are also found in Zapadno-Kazakhstanskaya Oblast and near Dzhezhkazgan. Besides, it is possible that new sections of nickel ores will be found in the area of the Kimpersay Mines.

Before the revolution, there were no explored reserves of aluminum-bearing material in the Kazakh SSR. Now, the explored reserves in Kazakhstan account for 15 percent of the known reserves in the Soviet Union.

GOLD DEPOSITS EXPLORED IN SOUTH TADZHIKISTAN -- Stalinabad, Kommunist Tadjhikistana, 19 Nov 57

For several years, the South Tadjhik Expedition of the Tadjhik Geological Administration has been exploring the valley of the Yakh-Su River in search of gold. A systematic search for gold deposits is being conducted 70 kilometers from Khovalingskiy at a height of about 2,000 kilometers above sea level.

The investigative work is coming to a close, and in 1958, the work will be completed. On the basis of explored reserves of ore, mining enterprises will soon be built to mine the ore on an industrial scale.

Miscellaneous

NEED FOR NONFERROUS TECHNICIANS IN ARMENIA -- Yerevan, Kommunist, 23 Nov 57

The Nonferrous Metallurgical and Mining Industry Administration of the Armenian Sovnarkhoz needs experienced electrical engineers, mechanical engineers, chief accountants, and planning workers for production supply.

V. COAL INDUSTRY

General

CONTINUED EMPHASIS ON MECHANIZATION AND AUTOMATION -- Moscow, Mekhanizatsiya Truda i Tyazhelykh Rabot, No 11, Nov 57, pp 14-17

At the beginning of 1957, loading in USSR mines on the average was 36 percent mechanized. In the basic coal basins the level of mechanization was much higher -- 42 percent in the Donbass, 46 percent in the Kuzbass, 67 percent in Karaganda, and 49 percent in Pechora.

In 1956, the average monthly output of the Donbass combine was 35 percent higher than in 1950.

The installation of metal supports in 1,340 faces started at the beginning of 1957. The installation of anchor-type supports was also begun; these must be more widely applied in the future.

There were 5,500 coal- and rock-loading machines of various types operating in USSR mines at the beginning of 1957. In 1956, rock and coal loading in horizontal preparatory workings was almost 50 percent mechanized in the USSR. In the basic basins the percentage was higher -- 68 percent for the Donbass, 65 percent for the Kuzbass, and 64 percent in Karaganda.

The rate of shaft-sinking has increased considerably as a result of higher mechanization levels and improved organization of production and work. In 1956, the average monthly speed of shaft tunneling in the Donbass was 28.7 meters, in the Kuzbass 29.7 meters, and in Karaganda 25.8 meters, an increase of 50-100 percent over the level attained in the beginning of the Fifth Five-Year Plan and three to five times the prerevolution level.

In 1956, the concentration plants of the USSR coal industry processed 90.8 million tons of coal and manufactured 3.1 million tons of briquettes.

The development of the open-pit method will increase; it is expected that in 1960 at least 120 million tons of coal will be extracted by this method. In 1956, 77.5 million tons of coal was extracted by the open-pit method.

There are still many unutilized reserves for the growth of coal output and labor productivity in the industry. The utilization of these reserves calls for the solution of important problems in the technical development of coal output. Some of these problems are the installation of supports, roof control, and the movement of conveyers. These processes occupy the time of almost one third of all underground workers.

The task of complex mechanization of coal extraction processes cannot be solved without a sharp improvement in underground transport in USSR mines. During the coming years, the coal industry must complete the first stage of complex mine mechanization -- the mechanization of basic labor-consuming processes and the automation of control apparatuses for various mine mechanisms. The next stage will be the mechanization of all complex work in stope faces, in preparatory faces, in underground transport, and at the mine surface and also the conversion to automation or remote control of entire production processes.

Administration

JURISDICTION OF KARAGANDA MACHINERY REPAIR PLANTS TRANSFERRED -- Moscow, Master Uglya, No 10, Oct 57, p 16

The mining machinery repair plants, which were previously subordinate to the Karagandaugol' and Karagandashakhtostroy (Karaganda Mine Construction) combines, have been transferred to the Machine Building Administration of the Karagandinskiy Sovnarkhoz (Council of National Economy). They will manufacture machines and mechanisms for the coal industry and carry out capital repairs of mine equipment.

The construction organizations of Karaganda have been given the task of designing coal-extraction machines and equipment specifically for operation under conditions in the basin. The Karaganda Scientific Research Coal Institute is now working on the modernization of the PKD-1 mine-tunneling combine.

Production

PLAN GOALS FULFILLED -- Moscow, Pravda, 28 Nov 57

The Krasnodonugol' Trust is the first in the Voroshilovgradskiy Economic Region to fulfill its 1957 plan goals.

Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 15 Nov 57

The miners of Karaganda have fulfilled their 1957 plan goals ahead of schedule. Two thirds of all the coal output in the basin is extracted by mining combines.

Moscow, Pravda, 30 Nov 57

The miners of the Kuzbass fulfilled their 11-month plan goals on 28 November 1957. The Kuzbasugol' Combine is daily extracting 14,600 tons more fuel than it did in 1956.

KIZEL BASIN MINERS DO NOT FULFILL PLAN GOALS -- Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 15 Nov 57

The miners of the Kizel Basin have not fulfilled their plan goals for a long time. Stope advance is slow, proper techniques are poorly utilized, and the work of the miners is poorly organized. As a result, the basin is 30,000 tons short of plan goals.

A study of the situation by the Permskiy Sovnarkhoz resulted in the following recommendations: a speed-up in basic planned mine production capacities, improved systems of mine development, and mechanization of the more labor-consuming operations.

PROBLEM OF COAL SUPPLY AND DELIVERY STILL SERIOUS IN GEORGIA -- Moscow, Master Uglya, No 10, Oct 57, p 16

The problem of coal deliveries to consumers has been a very real one in Georgia. In recent years, the plans for coal deliveries have not been met and, as a result, many large enterprises have experienced a fuel shortage, particularly during the winter months.

To avoid a repetition of this situation, the Georgian sovarkhoz decided to take measures to guarantee an adequate supply of fuel for enterprises consuming Georgia coal. Since the successful fulfillment of the production plan by the coal enterprises of Georgia, supplies of coal to the Georgian, Armenian, and Azerbaydzhan republics has been proceeding normally in 1957.

However, because of the limited fuel resources of Georgia, some of the enterprises have been obtaining coal from the Donbass. Receipt of the coal is often delayed, however, because of the long haulage distance and prolonged period of transfer at the ports of Zhdanov and Poti. Until its arrival, therefore, the sovnarkhoz has allocated its consumers sufficient quantities of coal by means of a redistribution of reserves among enterprises.

An analysis is being conducted on the work of each mine and section in an effort to improve further all the technical and economic indexes of the coal industry in the republic. An improvement in coal quality has also been given attention by the sovnarkhoz. The measures taken in this connection have already yielded results.

PLAN GOALS FULFILLED; SUPPLIES STILL SHORT -- Moscow, Sovetskaya Rossiya, 3 Dec 57

The miners of the Tul'skiy Economic Region have exceeded their plan goals by 900,000 tons since the beginning of 1957. They have resolved to bring this amount to one million tons by the end of the year.

Despite this, the supply of Mosbass coal is still insufficient for the needs of the industries of the central regions of the RSFSR. In 1956 alone, about 15 million tons of coal was imported from the Donets, Kuznetsk, Karaganda, Pechora, and other basins. The transfer of this coal costs more than 500 million rubles. Local output must rise in order to decrease hauling costs.

Large coal deposits have been surveyed in the Tul'skiy Economic Region. The most promising of these are in the Cherepetskiy, Aleksinskiy, and Venevskiy coal-bearing regions. Furthermore, open-pit mining can be organized in many sectors.

The Tulaugol' Combine built a small test open pit in Kimovski Rayon with a planned capacity of 830 tons a day. Operations have been under way for little more than 7 months and excellent results have been obtained. Daily production in October came to 1,150 tons and monthly labor productivity reached 201 tons, almost five times the average labor productivity for the Tulaugol' Combine. The pit has yielded the cheapest fuel in the basin. This pit is staffed by 170 men, whereas an underground mine of such capacity would need 700 to 750 men.

The Kimovski open-pit mine is under construction and is scheduled to begin operations in the near future. It will replace two average mines. Construction has also begun on the Belichevskiy open pit.

The possibilities exist for the construction of large mines in place of average and small ones. Capital investments per ton, during construction of a mine with an output capacity of 600,000 tons a year, are two thirds those of a mine with a 200,000-ton-a-year capacity, while the production rate is double that of such a mine. Mechanization and automation underground, as well as on the surface, can be more extensive.

The Tulaugol' Combine now has 87 Donbass combines. Labor-consuming operations are being successfully mechanized and all faces at Mine No 6 Lipkovskaya will be converted to combine extraction in 1958. The K-56 and K-57 combines have been developed for the mines at Tula.

The combine and its trusts have recently worked out a plan for mechanization and automation of production processes over a 7-year period.

Moscow coal is also an excellent raw material for the chemical industry. Scientific research and experimentation is opening up broad prospects for complex utilization of the coal. -- A. Subbotin, Chief, Tulaugol' Combine.

MINING OPERATIONS BEGIN -- Moscow, Komsomol'skaya Pravda, 15 Nov 57

Mine Belorechenskaya has begun operations. The mine, one of the largest in the Donbass, has an estimated production capacity of 2,500 tons a day. A settlement for miners has been built nearby and the miners' apartments are heated.

Kiev, Pravda Ukrainy, 7 Dec 57

Mine Belorechenskaya of the Leninugol' Trust, which has recently begun mining operations, has powerful combines, rock-loading machines, and heavy electric locomotives. The majority of underground workings are supported by reinforced concrete supports.

Moscow, Komsomol'skaya Pravda, 27 Nov 57

Mine Butovskaya-Glubokaya, where the first level has begun operations, is the deepest in the Donbass. Of the five shafts, the skip and cage shafts go to a depth of 1,032 and 1,056 meters, respectively. The shafts cut through five seams of valuable coking-quality coal.

The shafts are rigged with modern hoisting equipment.

Moscow, Komsomol'skaya Pravda, 27 Nov 57

Mine No 1 Poltavskaya-Komsomol'skaya has been released for mining operations.

Kiev, Pravda Ukrainy, 28 Nov 57

Mine Poltavskaya-Komsomolskaya, which has begun mining operations one month ahead of schedule, has a production capacity of 500 tons of anthracite a day.

Riga, Sovetskaya Latvija, 17 Nov 57

Mine Rovenskaya-Komsomol'skaya in the Donbass has a planned production capacity of 150,000 tons a year and was completed 1.5 months ahead of schedule.

Moscow, Pravda, 18 Nov 57

Mine Rovenskaya-Komsomol'skaya has a daily production capacity of 500 tons.

Moscow, Komsomol'skaya Pravda, 16 Nov 57

Mine Rovenskaya-Komsomol'skaya is the 18th mine, of the 35 being built in the Ukraine with Komsomol aid, to begin operations.

Technology

NEW COMPLEX FOR INCLINED SEAMS TESTED IN DONBASS -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 22 Nov 57

Tests have been successfully concluded on a new coal complex in Mine Zapadnaya-Kapital'naya of the Nesvetayantratsit Trust. The complex is intended for work in seams having a thickness of from one to 1.6 meters. It consists of an M-39 support, a K-26 broad-bite combine, and a KS-1 permanent, curved conveyer.

The use of this new complex solves to a considerable degree the problem of complex mechanization of coal extraction in inclined seams. In addition, favorable conditions are created for cyclic organization of work, expenditures for support timbers are considerably decreased, basic processes can be completely mechanized, and labor-consuming work in the installation of supports and roof control is eliminated. The new coal complex also will permit increased labor productivity and decreased coal costs.

NEW METHANE DETECTOR DEVELOPED -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 29 Nov 57

The Laboratory of Automatics and Telemechanics of the Academy of Sciences Ukrainian SSR is at present working on automatic devices which will direct coal-cutting machines precisely along the boundary between the coal and rock, thus allowing extraction along the entire thickness of the seam.

The Laboratory of Ventilation, which is headed by A. Shcherban', an active member of the academy, has developed an automatically operating gas analyzer, which is now being series-produced. If the concentration of methane in the area where mining machines are operating and where the methane detector is operating exceeds the permissible limit, automatic sound and light alarm signals are switched on. If measures for degasification are not taken, then the power supply to the section is automatically cut off and work is discontinued.

BEGIN TESTS ON MINERS' LAMPS -- Riga, Sovetskaya Latvija, 29 Nov 57

Tests have begun in Mine No 8 at Stalino on a consignment of new, lighter lamps created by Dongiprouglemash (Donets State Planning, Construction, and Testing Institute for Complex Organization of Mines). The light is fastened to the miner's cap and is powered by a battery suspended from the belt. The entire assembly weighs 1.6 kilograms, 2.5 kilograms less than those in use at present. A feature of the construction considerably simplifies the charging of the new lamp, making it possible for the workers themselves to do this after coming out of the mine.

TURBULENT BED SEPARATOR BEING BUILT FOR COAL CONCENTRATION -- Moscow, Trud, 30 Nov 57

The separator now being built by the Karaganda Machine Building Plant imeni Parkhomenko operates on the principle of a turbulent bed of crushed particles, which has been widely utilized in the petroleum industry during gasification and in the dressing and enriching of ore. The bodies in the turbulent sand bed of this separator are separated according to their specific weight. Those having lighter specific weight float to the surface, while those with heavier specific weight sink to the bottom. The separator is being built according to the plans of V. L. Przhetslavskiy, an engineer of the Karagandagiproshakht (Karaganda State Mine Planning) Institute.

This new, unique aggregate is intended for the separation of coal from rock at the concentration plant of Mine No 38 of the Kirovugol' Trust. The use of this installation makes possible the concentration of 25 tons of coal an hour, eliminating the necessity for bulky concentration equipment.

The institute is now developing plans for a separator with a larger capacity for the concentration, in a turbulent bed, of lump coal measuring 300 millimeters. A concentration aggregate for such large pieces is not as yet in existence. In comparison with the new SPB-100 separator, which is operating in the open-pit mines of the Urals and Siberia, this new unique separator improves the quality of concentration and results in an over-all saving of at least 6 million rubles a year.

Engineer Przhetslavskiy is now working on the development of a separator for the concentration, in a turbulent bed, of solid materials through the use of centrifugal force, making the process of separation many hundreds of times faster.

FIRST USE OF REINFORCED SUPPORTS IN INCLINED WORKINGS -- Moscow, Trud, 1 Dec 57

Reinforced, prefabricated concrete supports are being more widely introduced in Karaganda Basin mines. Good results have been obtained from their use in Mine No 4 in the new Churubay-Nurin coal deposit. These supports are at the present supporting over 3 kilometers of underground workings at the mine. The use of reinforced concrete supports underground has permitted the collective to save 4 million rubles. This is the first time such supports have been used for inclined workings in the USSR. They provide an economical means of supporting mine workings with an inclination of 45 degrees. Their arched form makes them sturdier than all other existing types of underground supports.

Construction

PROGRESS OF OPERATIONS AT KOMSOMOL' MINES SLOW -- Keiv, Pravda Ukrainy,
21 Nov 57

At a plenum of the oblast committee of the party in Voroshilovgrad it was pointed out that a number of measures in connection with mining and assembly work were not completed and that mine settlements are being slowly erected for mines No 2 Kievskaya-Komsomol'skaya, No 1 Khmel'nitskaya-Komsomol'skaya, and No 2 Zaporozhskaya-Komsomol'skaya.

PLAN OPEN PIT-MINE AT AZEY DEPOSIT -- Vil'nyus, Sovetskaya Litva, 1 Nov
57

The Irkutskiy Sovnarkhoz has approved the plans for the construction of the first open-pit mine on the Azev coal deposit. The mine, to be built by the Irkutskpromstroy (Irkutsk Industrial Construction) Trust, will have an annual planned capacity of 6 million tons.

CONSTRUCTION SLOW; BUILDERS' NEEDS NEGLECTED -- Kiev, Pravda Ukrainy
21 Nov 57

The progress of construction of the Komsomol' mines in the Donbass was discussed at a plenum of the oblast committee of the party in Voroshilovgrad.

Despite considerable success in the construction of these mines, it was pointed out at the plenum that in the construction of mines No 2 Zaporozhskaya-Komsomol'skaya, No 2 Kievskaya-Komsomol'skaya, No 1 Khmel'nitskaya-Komsomol'skaya, and a number of others the graphs for mining and installation work are not being fulfilled. Furthermore, the settlements for the miners are being erected slowly.

D'yachenko, manager of the Sverdlovzhilstroy Trust, and Bredyuk, manager of the Kadiyevshakhtostroy Trust, were sharply criticized for lack of attention to the cultural and social needs of the young builders. In the settlements of several of the mines the dormitories are unheated, the dining halls and shops are poorly operated, and there are no shops producing household necessities.

It was corroborated at the meeting that all the Komsomol-built mines will begin operations in 1957, part of them on the opening day of the oblast party conference in mid-December and the remainder on 25 December, the 40th anniversary of the October Revolution in the Ukraine.

SOVNARKHOZ CRITICIZED FOR FAILURE TO IMPLEMENT DECISION -- Moscow, Komsomol'skaya Pravda, 22 Nov 57

Almost half the mines being built in the Donbass with Komsomol aid are being erected in Stalinskaya Oblast. Several of these mines are already producing, while four others are scheduled to go into operation. However, the construction work on the remaining mines is proceeding very poorly. At Mine No 2 Vinnitskaya-Komsomol'skaya construction and installation work is less than half completed. Still needed are 300 meters of underground entries, the construction of a building for main and auxiliary hoists, an administrative and social complex, the assembly of an electric power substation, a crushing and sorting department, and a connecting gallery. However, there is no feeling of urgency to progress, the construction brigades are incomplete, and the delivery of materials has been poorly arranged.

Several construction organizations are concerned with construction of these mines. The mine workings and construction of surface buildings are being done by Administration No 7; Stalinshakhtostroyontazh (Stalino Mine Construction Installation) Trust is installing equipment; and underground trackage and the planning and organization of public services are the responsibility of Stalindorvodstroy (Stalino Road and Water-Main Construction) Trust. The Shakhterskzhilstroy (Shakhtersk Housing Construction) Trust is responsible for housing construction. Just as in other Komsomol projects, these organizations do not take each other into consideration and therefore do not coordinate their work.

In June 1957, the sovnarkhoz adopted a far-reaching decision on measures to guarantee the beginning of operation of the mines in 1957. The managers of trusts and administrations were made responsible for supplying the various mine construction projects with the necessary equipment, instruments, and materials. However, the tunnelers at Mine Volynskaya-Komsomol'skaya have too few pneumatic drills, while installers at Cherkasskaya-Komsomol'skaya lack welding equipment and pipes for the heating system. The Shakhtersk Motor Depot was contracted to supply Mine Vinnitskaya-Komsomol'skaya with 30 trucks daily, but has supplied less than half that number.

It is unfortunate that the sovnarkhoz has not organized operational controls to carry out the provisions of its decision.

Prospecting

USSR GEOLOGICAL RESERVES GIVEN -- Moscow, Pravda, 4 Dec 57

The total geological reserves of coal in the USSR are estimated at 8,670,000,000 tons. Deposits of the Pechora Basin are estimated at 260 billion tons. The Kansk-Achinsk Basin in Krasnoyarskiy Kray along the Siberian Railroad line is believed to have brown coal deposits of over 1.2 billion tons. The existence of high-quality coke-chemical coal deposits in Yuzhno-Yakutsk was recently announced. Deposits of the Tungus Basin in Siberia are estimated at over 1.5 billion tons [Vodnyy Transport, 17 December 1957, reported them to be 1.3 billion tons].

BROWN COAL IN PRIMORSKIY KRAY -- Moscow, Komsomol'skaya Pravda, 20 Nov 57

A new brown coal basin has been found in Primorskiy Kray by geologists. Great deposits of coal are located not far from the Burlit station.

EXPLOITATION OF KARA-KECH DEPOSIT -- Moscow, Komsomol'skaya Pravda, 16 Nov 57

Industrial exploitation of the Kara-Kech deposit in the Kirgiz SSR is beginning. Estimated at total fuel deposits in the basin are in the hundreds of millions of tons.

EXPANDING COKING COAL BASE OF GEORGIA -- Tbilisi, Zarya Vostoka, 21 Nov 57

The Bzybsk, Tkvarcheli, Gelati, Tkibuli, and Shaori bituminous deposits and the Akhaltsikhe brown coal deposit are important to the industry of Georgia. The Tkvarcheli deposit is particularly important because of its coking coals.

The southwest and southeast extensions of the first area of the Tkvarcheli and Bzybsk deposits are of great importance to the further expansion of coking coal base of the republic. The Kavkazuglegeologiya (Caucasus Coal Geology) Trust had planned the boring of two structural and prospecting holes in the areas of the Belaya River and the Lashkender Ridge in order to ascertain the coal-bearing layers of the deposits. However, the offer of this trust was not accepted by the former Glavuglegeologiya (Main Administration for Geology) of the Ministry of Coal Industry USSR. It must be hoped that the problem will finally have a positive solution.

The opening of the fourth and fifth sections of the Tkvarcheli deposit will be of great importance to the output of coking coals. The detailed surveying of the fourth section has been concluded, and the surveying of the fifth area will be completed in 1957.

The Tkibuli deposit of western Georgia consists of five sections curving along the edge of the Tkibuli syncline. Three sections of this deposit are completely surveyed and are being exploited. The Tkibulugol' Trust, which is exploiting these sections, allows more than 40 percent loss in the amount of coal during extraction. This is because the mining of thick seams with hydraulic fill-in of the mined-out area has not as yet been solved on an industrial scale. The solution of this problem will permit an increase in the exploitable deposits of coal.

The Shaori deposit, largest in the republic, was opened by the former Kavkazuglegeologiya Trust in 1956.

The new organizational structure of the geological services in Georgia increases the effectiveness of projected geological survey work and the complex study of the natural resources of the republic.

Safety

SAFETY MEASURES IGNORED; TRADE UNION COMPLAINS -- Moscow, Trud, 15 Nov 57

At the time of the visit by instructors of the Central Committee of the Trade Union of Coal Industry Workers to the mines of the Rutchenkovugol' Trust in 1956, it was noted that nothing had been done to fulfill the provisions of an agreement on work safety and safety techniques. Even though 10 months have elapsed since that time, working conditions have not as yet improved. Moreover, neither Perov, the trust manager, nor Belorussov, chief engineer, have read the central committee decision.

It had been proposed to the trust management that miner travel in inclined and horizontal workings be mechanized during the first quarter of 1957. In many Donbass mines underground miner locomotives are already in operation, but in the Rutchenkovugol' Trust, for some reason, the wide use of underground mine transport has been delayed.

The Kirovskiy rayon committee of the trade union has repeatedly made attempts to bind the management of Mine No 19 to conduct a course in the organization of work safety, but to no avail. Tarasenko, the mine engineer, was summoned to a meeting of the commission on work safety.

His reply, when asked when the entry and railway for underground travel would be ready for use, was that an answer was difficult and that there were not enough builders. This is as usual; administrators can find numerous excuses when necessary in such cases.

This state of affairs is known to the administration of the Stalinugol' Combine, but it is not very disturbed about it. Furthermore, the mechanization of transport of miners to the working faces is extremely slow in most trusts of this combine. During the first 6 months of 1957, for example, railway haulage to 19 horizontal and 34 inclined seam workings was to have begun, but not even 50 percent of the plan was fulfilled.

At a plenum held during the latter part of July 1957 the trade union oblast committee discussed the status of work safety and safety techniques in the coal industry of Stalinskaya Oblast. Participants in the plenum sharply criticized the management of both the Stalinugol' and Artemugol' combines and demanded from them the unconditional fulfillment of all measures on work safety and safety techniques which had been noted in the collective agreements for the mines. However, this criticism has not had any effect. The Stalinskaya Oblast Council of the Trade Union should have helped the oblast committee bring the entire affair to an end.

Training

SCHOOL OBSERVES TENTH ANNIVERSARY -- Stalinabad, Kommunist Tadzhikistana, 3 Dec 57

In 1957, the Shurab Mining Industrial School observes the tenth anniversary of its founding. During this 10-year period, 2,650 young specialists have attended the school. Many of them are at present working in various Tadzhik mines.

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